

What is claimed is:

- 1) A composition of matter useful as a phosphor in light emitting diodes, which comprises a material described by the formula:



in which x and y are each independently any value between 0 and 1, subject to the proviso that the sum of x and y is equal to any number in the range of between about 0.75 and about 1.25, and wherein Cu is present in any amount between about 0.0001 % and about 5 % in mole percent based on the total molar weight of said composition.

2) A composition according to claim 1 wherein $0 \leq x \leq 1$ and $0 \leq y \leq 1$.

3) A composition according to claim 1 wherein $0.5 \leq x \leq 1$ and $0 \leq y \leq 0.5$.

4) A composition according to claim 1 wherein $0 \leq x \leq 0.5$ and $0 \leq y \leq 0.5$.

5) A composition according to claim 1 wherein $0 \leq x \leq 0.5$ and $0.5 \leq y \leq 1.0$.

6) A composition according to claim 1 wherein $x = 0$, and $y = 1$.

7) A composition according to claim 1 wherein $x = 1$, and $y = 0$.

8) A composition of matter useful as a phosphor in light emitting diodes, which comprises a material described by the formula:



in which x and y are each independently any value between 0 and about 1, subject to the proviso that the sum of x and y is equal to any number in the range of between about 0.75 and about 1.25; wherein A comprises at least one additional element selected from the group consisting of: Ag, Al, Ce, Tb, Cl, I, Mg, and Mn, including mixtures thereof, and wherein Cu is present in any amount between about 0.0001 % and about 5 % in mole percent based on the total molar weight of said composition.

9) A composition according to claim 8 wherein $0 \leq x \leq 1$ and $0 \leq y \leq 1$.

10) A composition according to claim 8 wherein $0.5 \leq x \leq 1$ and $0 \leq y \leq 0.5$.

11) A composition according to claim 8 wherein $0 \leq x \leq 0.5$ and $0 \leq y \leq 0.5$.

12) A composition according to claim 8 wherein $0 \leq x \leq 0.5$ and $0.5 \leq y \leq 1.0$.

13) A composition according to claim 8 wherein $x = 0$, and $y = 1$.

14) A composition according to claim 8 wherein $x = 1$, and $y = 0$.

15) A composition according to claim 8 wherein the total amount of A present is any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

16) A composition according to claim 9 wherein the total amount of A present is any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

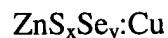
17) A composition according to claim 10 wherein the total amount of A present is any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

18) A composition according to claim 11 wherein the total amount of A present is any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

19) A composition according to claim 12 wherein the total amount of A present is any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

20) A light emitting device comprising:

- a) a light source selected from the group consisting of: light-emitting diodes and lasers, wherein said light source emits light having a frequency of between about 360 and about 480 nanometers; and
- b) a phosphor described by the formula:



in which x and y are each independently any value between 0 and 1, subject to the proviso that the sum of x and y is equal to any number in the range of between about 0.75 and about 1.25, and wherein Cu is present in any amount between about 0.0001 % and about 5 % in mole percent based on the total molar weight of said composition.

21) A light emitting device according to claim 20 wherein said phosphor further comprises at least one additional element selected from the group consisting of: Ag, Al, Ce, Tb, Cl, I, Mg, and Mn, including mixtures thereof.

22) A light emitting device according to claim 21 wherein the total amount of said at least one additional element present is any amount between about 0.0001 % and about 5 % in mole percent based on the total molar weight of said composition.

23) A light emitting device according to claim 20 comprising a mixture of at least two different phosphors described by said formula.

24) A light emitting device according to claim 21, comprising a mixture of at least two different phosphors described by said formula.

25) A light emitting device according to claim 22, comprising a mixture of at least two different phosphors described by said formula.

26) A light emitting device according to claim 20, wherein said phosphor emits white light.

27) A light emitting device according to claim 21, wherein said phosphor emits white light.

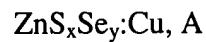
28) A light emitting device according to claim 22, wherein said phosphor emits white light.

29) A light emitting device according to claim 23, wherein said mixture of phosphors emit white light.

30) A light emitting device according to claim 24, wherein said mixture of phosphors emit white light.

31) A light emitting device according to claim 25, wherein said mixture of phosphors emit white light.

32) A light emitting device as set forth in claim 20, further comprising a phosphor described by the formula:



in which x and y are each independently any value between 0 and about 1, subject to the proviso that the sum of x and y is equal to any number in the range of between about 0.75 and about 1.25; wherein A comprises at least one additional element selected from the group consisting of: Ag, Al, Ce, Tb, Cl, I, Mg, and Mn, including mixtures thereof, and wherein Cu is present in any amount between about 0.0001 % and about 5 % in mole percent based on the total molar weight of said composition.

33) A light emitting device according to claim 32 wherein the total amount of A present is any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

34) A device according to claim 32, wherein the phosphors emit white light.